# Service Document
# Exchange Set

## YACHT BOY 10 WR5401

**Service Manual**

**Sicherheit Safety**

Materialnr./Part No. 720108000001

⚠ Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Materialnummer 720108000001, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

⚠ The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 720108000001, as well as the respective national deviations.

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This Service Document is only available as data
Änderungen vorbehalten/Subject to alteration
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GRUNDIG

# ALIGNMENT INSTRUCTIONS

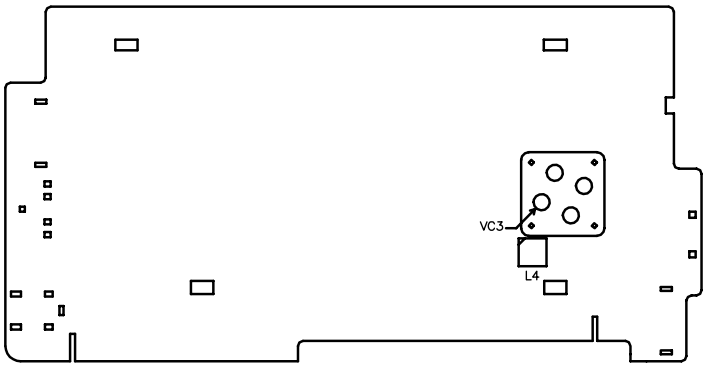
## (1) ALIGNMENT FOR FM FREQUENCY RANGE

a. Required Instruments
FM RF signal generator
SSVM

b. Alignment Procedure

| Mode | Adjustment | Procedure |
|---|---|---|
| FM | L4<br>VC3 | (1) Set the power switch to the ON position.<br>(2) Connect a SSVM to the TP5 and TP6.<br>(3) Connect the FM signal generator to the input terminal of the rod antenna (TP1, TP2)<br>(4) Set the signal of the signal generator to the standard FM band, with frequency deviation to 22.5 kHz modulation.<br>(5) With the tuning gang fully closed, set the signal generator to 87.35 MHz ±0.15 MHz and adjust L4 for a maximum reading on the SSVM.<br>(6) With the tuning gang fully open, set the signal generator to 108.25 MHz ±0.25 MHz and adjust VC3 for a maximum reading on the SSVM.<br>(7) Repeat Steps 5 and 6 until the best sensitivity is obtained at both frequencies. |

c. Instrument Connection



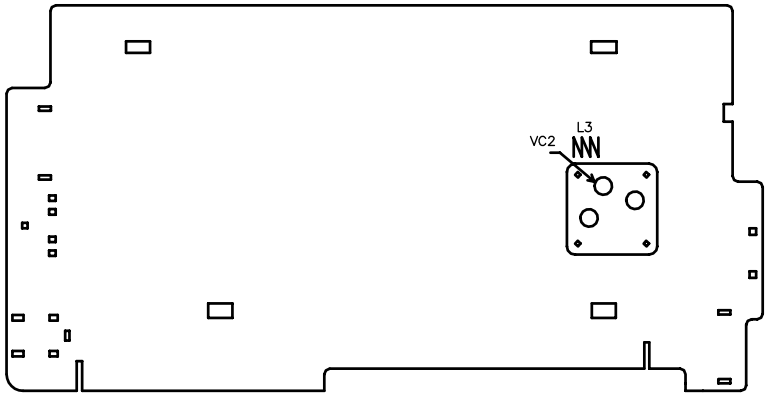
## (2) ALIGNMENT FOR FM SENSITIVITY

a. Required Instruments
FM/AM RF Signal Generator
SSVM

b. Alignment Procedure

| Mode | Adjustment | Procedure |
|---|---|---|
| FM | L3<br>VC2 | (1) Set the power switch to the ON position.<br>(2) Connect a SSVM to the speaker. (TP5, TP6)<br>(3) Connect the FM signal generator to the input terminal of the rod antenna (TP1, TP2)<br>(4) Set the signal of the signal generator to the standard FM band, with frequency deviation to 22.5kHz modulation.<br>(5) With the tuning gang fully closed, set the signal generator to 90 MHz and adjust L3 (stretch or squeeze) for a maximum reading on the SSVM.<br>(6) With the tuning gang fully open, set the signal generator to 106 MHz and adjust VC2 for a maximum reading on the SSVM.<br>(7) Repeat steps 5 and 6 until the best sensitivity is obtained at both frequencies. |

c. Instrument Connection



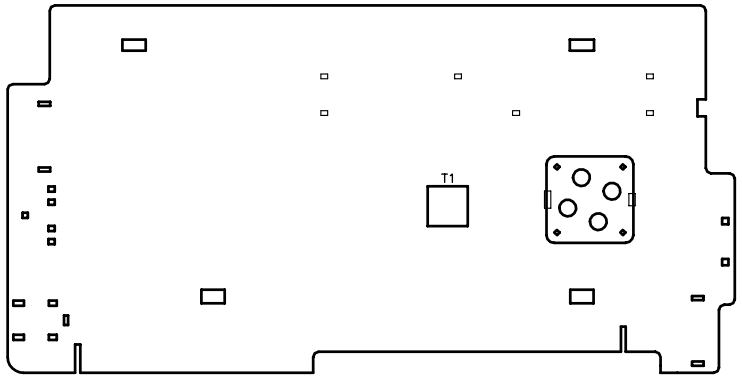
### (3) ALIGNMENT FOR AM IF

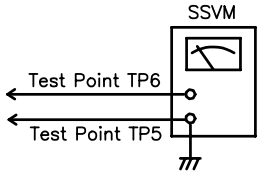
a. Required Instruments
AM RF Signal Generator
SSVM

b. Alignment Procedure

| Mode | Adjustment | Procedure |
|---|---|---|
| AM | T1 | (1) Set the power switch to the ON position.<br>(2) Connect a SSVM to the TP5, TP6.<br>(3) Connect the AM signal generator to the loop antenna.<br>(4) Set the signal generator to 460 kHz, with 30% modulation. Set the tuning gang fully closed, and adjust T1 for a maximum reading on the SSVM. |

c. Instrument Connection



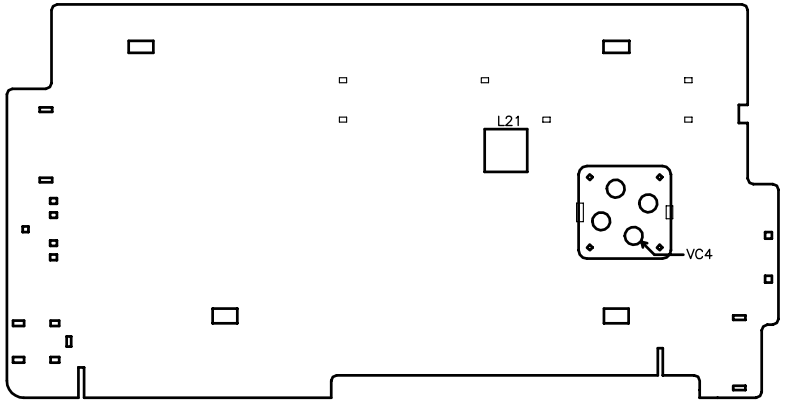

### (4) ALIGNMENT FOR AM FREQUENCY RANGE

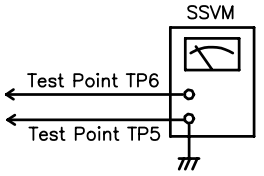
a. Required Instruments
AM RF Signal Generator
SSVM

b. Alignment Procedure

| Mode | Adjustment | Procedure |
|---|---|---|
| MW | L21<br>VC4 | (1) Set the power switch to the ON position.<br>(2) Connect a SSVM to the TP5, TP6.<br>(3) Connect a AM RF signal generator to the loop antenna.<br>(4) Set the signal generator to 516.5 kHz with 30% modulation. Set the tuning gang fully closed, and adjust L21 for maximum reading on the SSVM.<br>(5) Set the signal generator to 1631.5 kHz. Set the tuning gang fully open and adjust VC4 for a maximum reading on the SSVM.<br>(6) Repeat Steps 4 and 5 until the best sensitivity is obtained at both frequencies. |

c. Instrument Connection



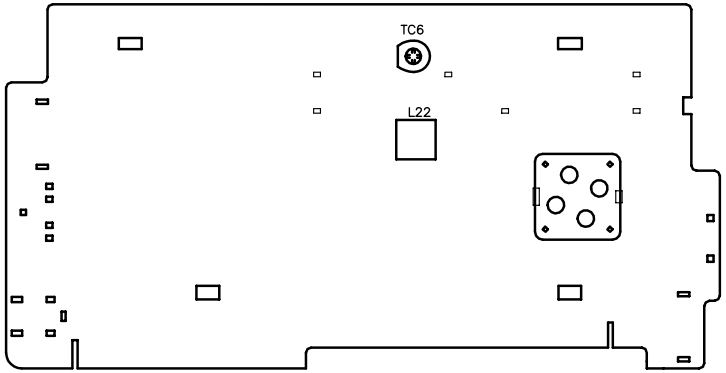
## (5) ALIGNMENT FOR AM FREQUENCY RANGE

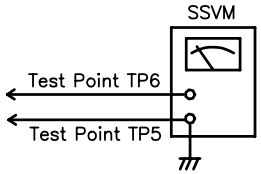
a. Required Instruments
AM RF Signal Generator
SSVM

b. Alignment Procedure

| Mode | Adjustment | Procedure |
|---|---|---|
| LW | L22<br>TC6 | (1) Set the power switch to the ON position.<br>(2) Connect a SSVM to the TP5, TP6.<br>(3) Connect a AM RF signal generator to the loop antenna.<br>(4) Set the signal generator to 138.5 kHz with 30% modulation. Set the tuning gang fully closed, and adjust L22 for maximum reading on the SSVM.<br>(5) Set the signal generator to 293.5 kHz. Set the tuning gang fully open and adjust TC6 for a maximum reading on the SSVM.<br>(6) Repeat Steps 4 and 5 until the best sensitivity is obtained at both frequencies. |

c. Instrument Connection



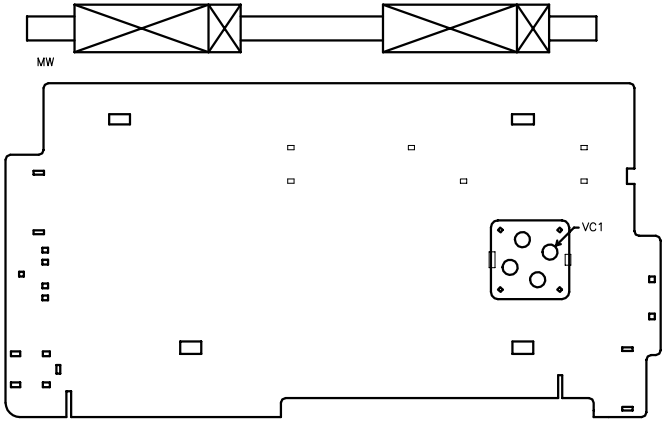

## (6) ALIGNMENT FOR AM SENSITIVITY

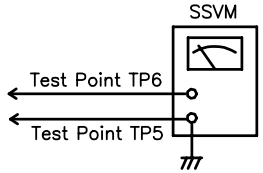
a. Required Instruments
AM RF Signal Generator
SSVM

b. Alignment Procedure

| Mode | Adjustment | Procedure |
|---|---|---|
| MW | L6<br>VC1 | (1) Set the power switch to ON position.<br>(2) Connect a SSVM to the TP5, TP6.<br>(3) Connect the AM RF signal generator to the loop antenna.<br>(4) Set the signal generator to 558 kHz, with 30% modulation. Set the tuning gang fully closed and adjust L6 for a maximum reading on the SSVM.<br>(5) Set the signal generator to 1440 kHz. Set the tuning gang fully open and adjust VC1 for a maximum reading on the SSVM.<br>(6) Repeat steps 4 and 5 until the best sensitivity is obtained at both frequencies. |

c. Instrument Connection



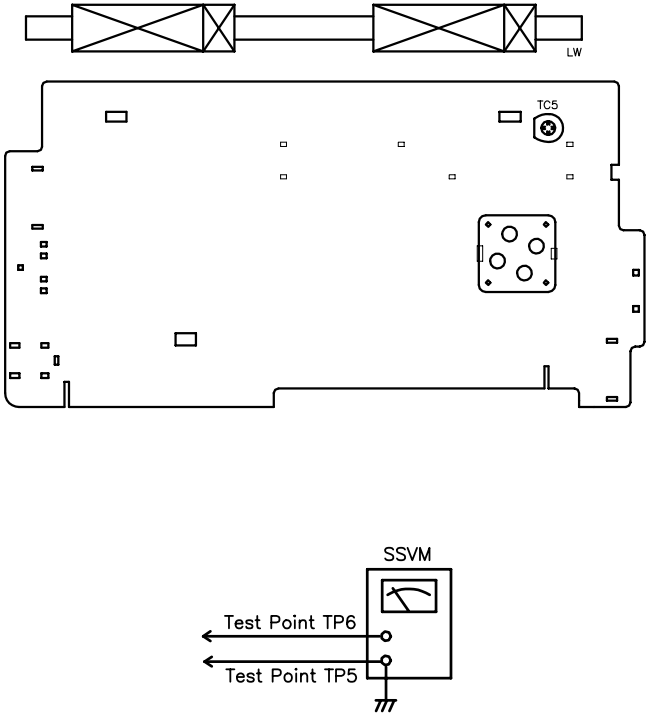
## (7) ALIGNMENT FOR AM SENSITIVITY

a. Required Instruments
AM RF Signal Generator
SSVM

b. Alignment Procedure

| Mode | Adjustment | Procedure |
|---|---|---|
| LW | L6<br>TC5 | (1) Set the power switch to ON position.<br>(2) Connect a SSVM to the TP5, TP6.<br>(3) Connect the AM RF signal generator to the loop antenna.<br>(4) Set the signal generator to 153 kHz, with 30% modulation. Set the tuning gang fully closed and adjust L6 for a maximum reading on the SSVM.<br>(5) Set the signal generator to 261 kHz. Set the tuning gang fully open and adjust TC5 for a maximum reading on the SSVM.<br>(6) Repeat steps 4 and 5 until the best sensitivity is obtained at both frequencies. |

c. Instrument Connection




## (8) OSCILLATOR ALIGNMENT FOR REMAINDER OF SW BANDS

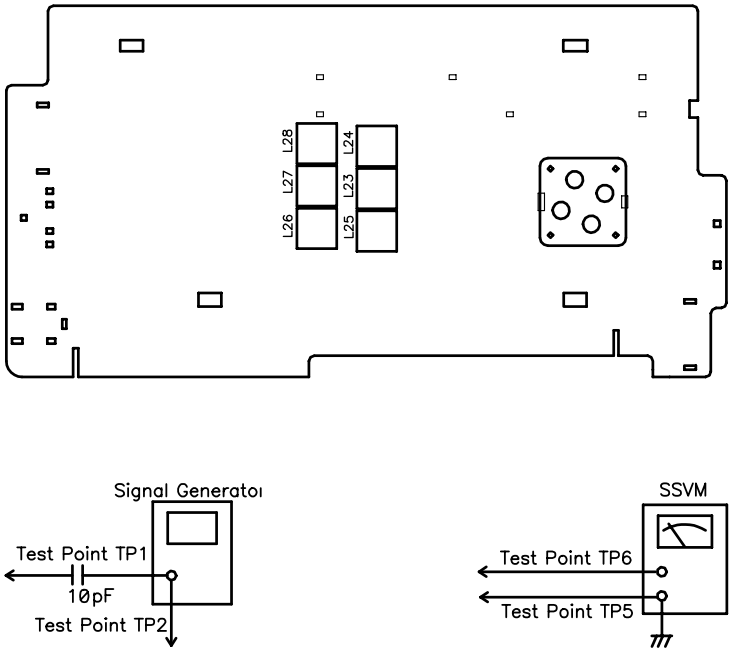
a. Required Instruments
AM RF Signal Generator
SSVM

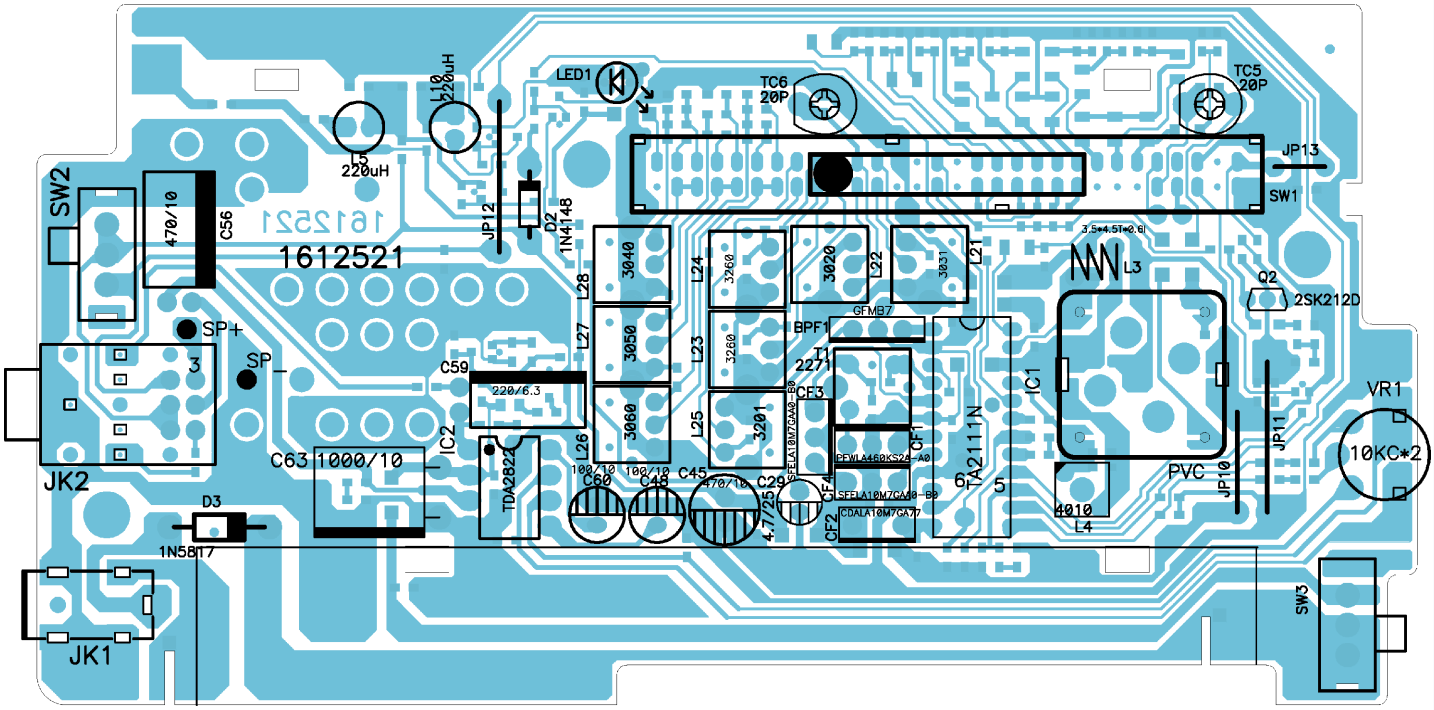
b. Alignment Procedure

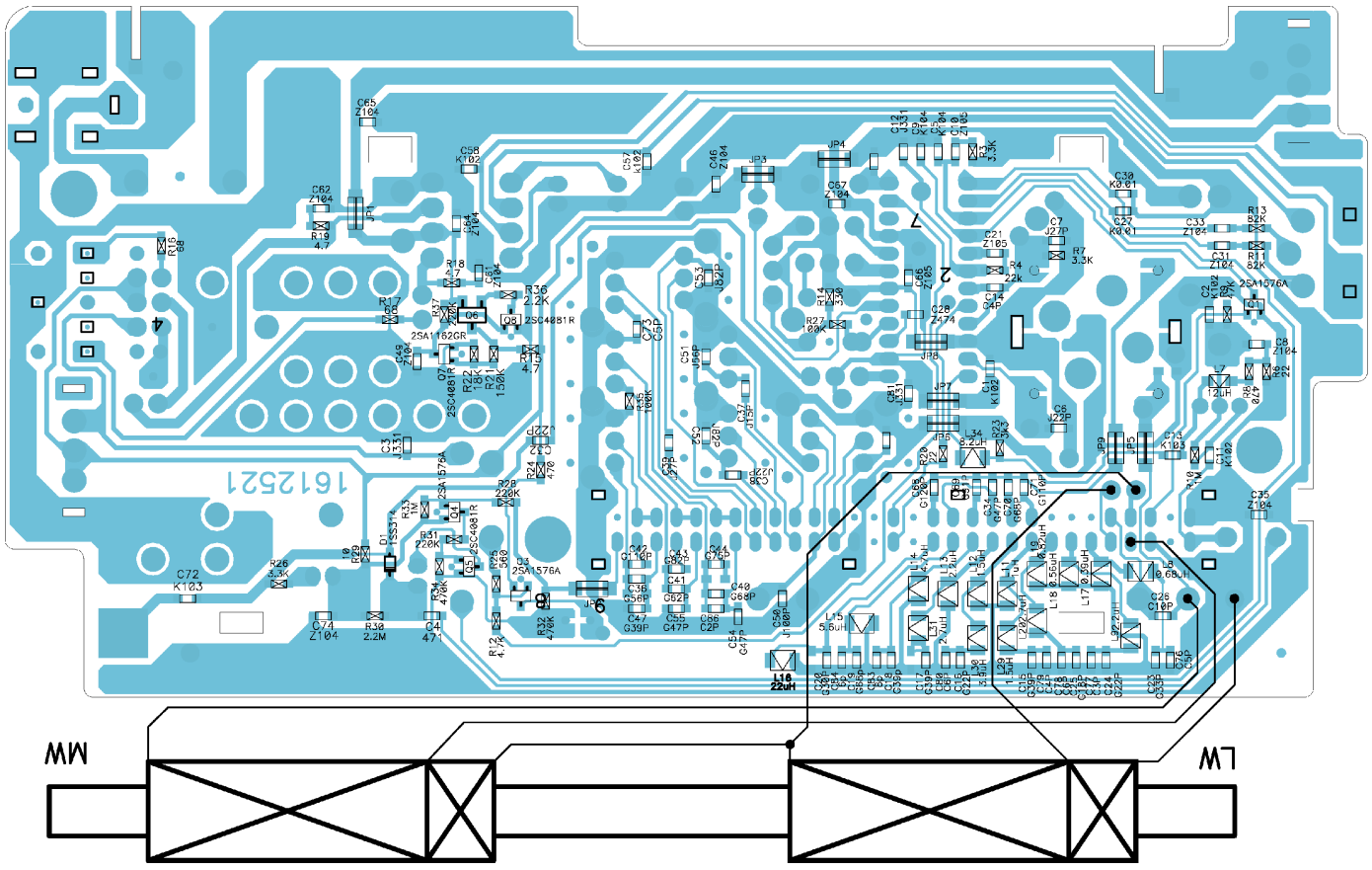
| Mode | Procedure |
|---|---|
| 75m<br>↓<br>12m | (1) Set the power switch to ON position.<br>(2) Connect a SSVM to the TP5, TP6.<br>(3) Connect a signal generator with a 10pF dummy antenna. (TP1, TP2)<br>(4) Set the signal generator's frequency as noted below (use 1kHz, 30% modulation).<br>(5) With the tuning gang fully closed, adjust the appropriate coils noted below for maximum reading on the SSVM. |

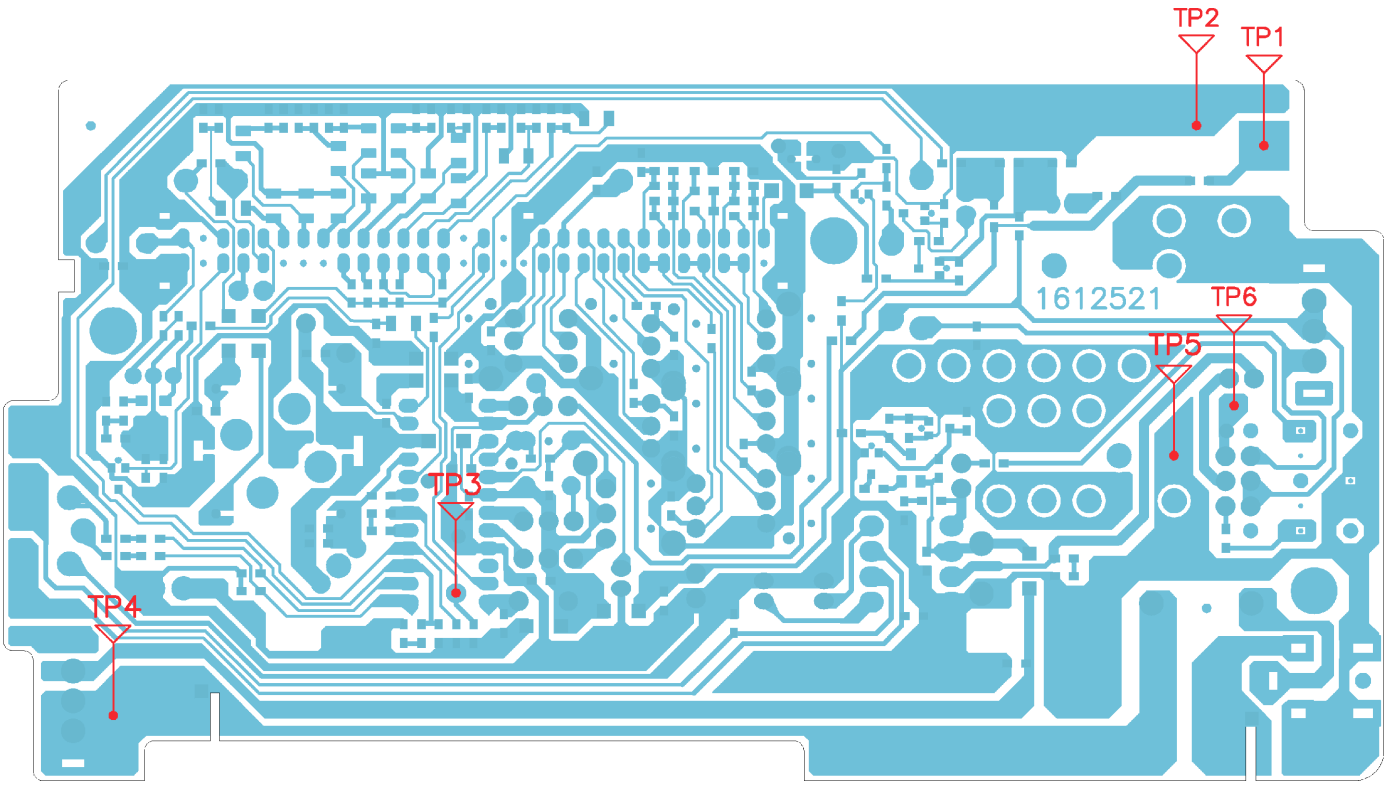
| Mode | Generator Frequency | Adjustment |
|---|---|---|
| 75m | 3.85 MHz | L28 |
| 49m | 5.80 MHz | L28 |
| 41m | 7.00 MHz | L27 |
| 31m | 9.30 MHz | L27 |
| 25m | 11.43 MHz | L26 |
| 22m | 13.43 MHz | L26 |
| 19m | 15.00 MHz | L25 |
| 16m | 17.32 MHz | L24 |
| 13m | 21.20 MHz | L23 |

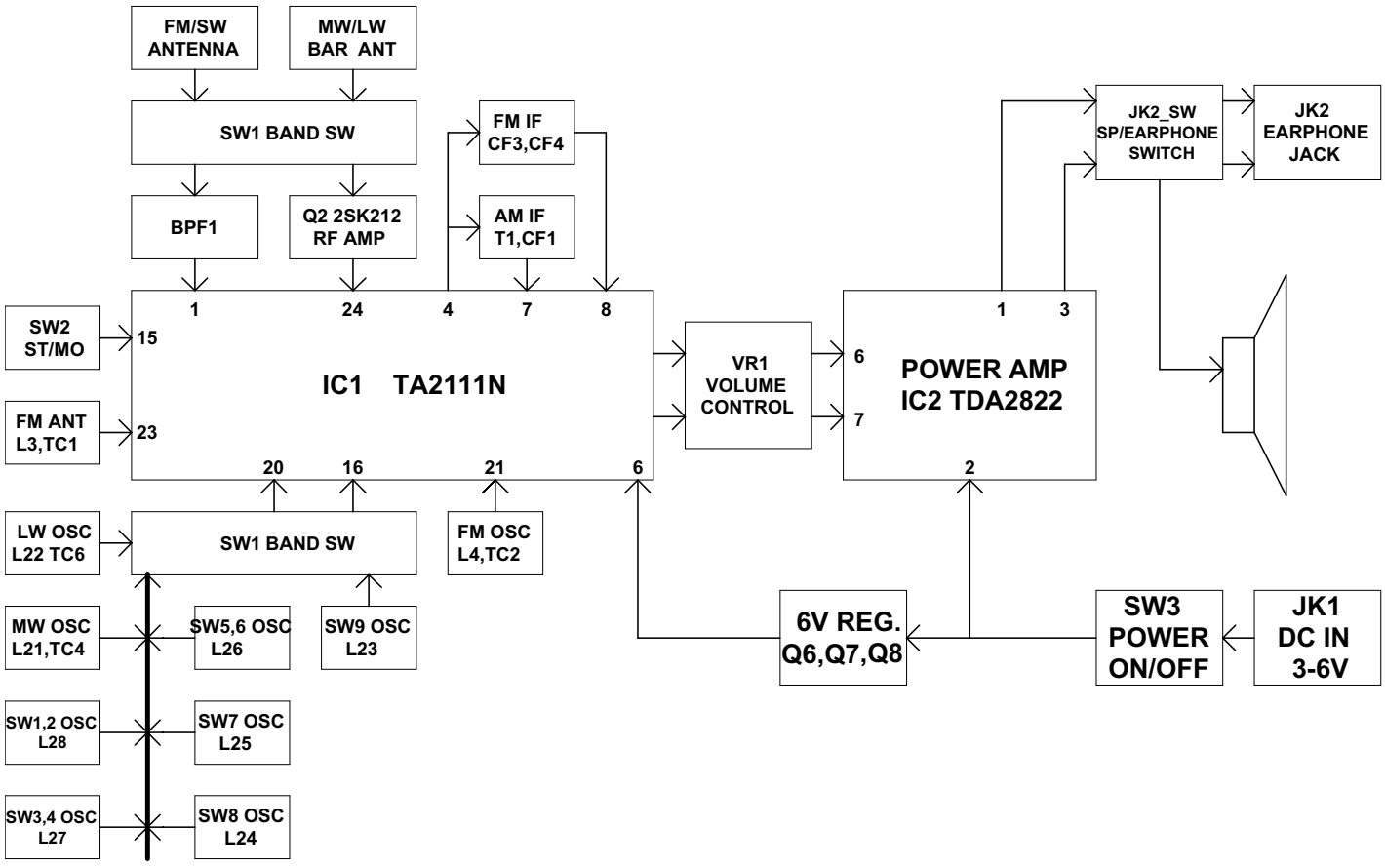
c. Instrument Connection

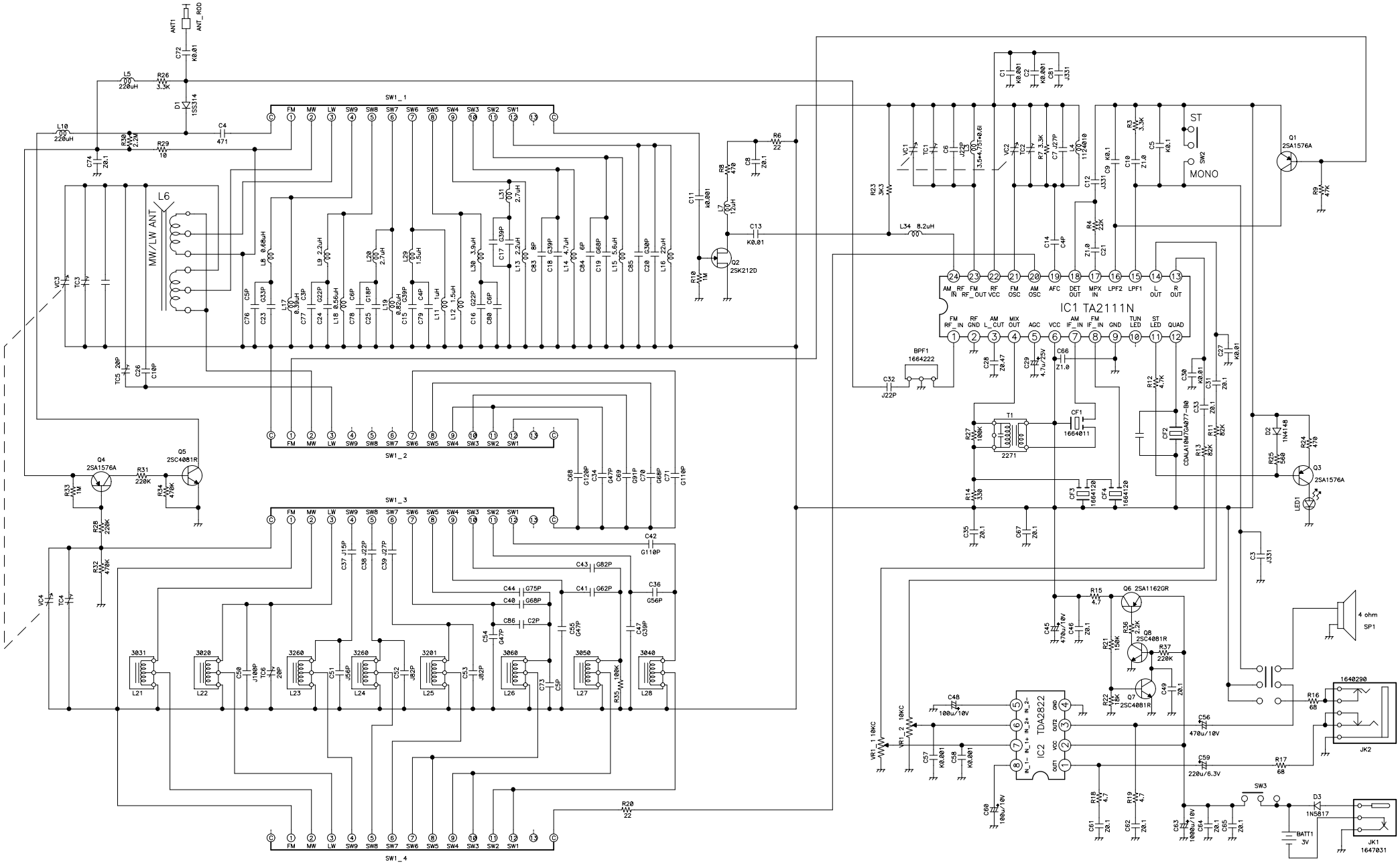



SW2
470/10
C56
1612521
L5
220uH
L10
220uH
JP12
D2
1N4148
LED1
TC6
20P
TC5
20P
JP13
SW1
L3
Q2
2SK212D
SP+
SP-
JK2
C59
220/6.3
IC2
TDA2822
C63 1000/10
D3
1N5817
JK1
C60
C45
C29
4.7/25
BPF1
CF1
CF2
CF3
CF4
IC1
TA2111N
PVC
JP10
JP11
VR1
10KC*2
SW3
L4
4010


1612521
MW
LW

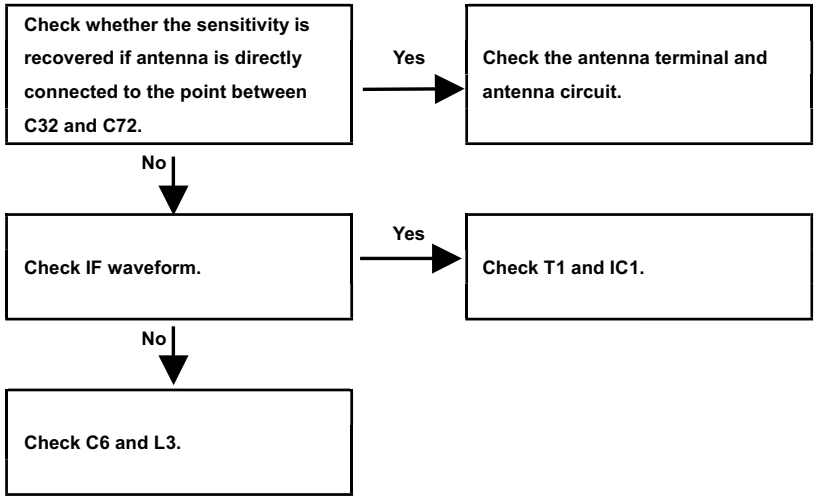

TP2
TP1
1612521
TP6
TP5
TP3
TP4


FM/SW ANTENNA
MW/LW BAR ANT
SW1 BAND SW
FM IF CF3,CF4
BPF1
Q2 2SK212 RF AMP
AM IF T1,CF1
JK2_SW SP/EARPHONE SWITCH
JK2 EARPHONE JACK
SW2 ST/MO
FM ANT L3,TC1
IC1 TA2111N
VR1 VOLUME CONTROL
POWER AMP IC2 TDA2822
LW OSC L22 TC6
SW1 BAND SW
FM OSC L4,TC2
MW OSC L21,TC4
SW5,6 OSC L26
SW9 OSC L23
SW1,2 OSC L28
SW7 OSC L25
SW3,4 OSC L27
SW8 OSC L24
6V REG. Q6,Q7,Q8
SW3 POWER ON/OFF
JK1 DC IN 3-6V

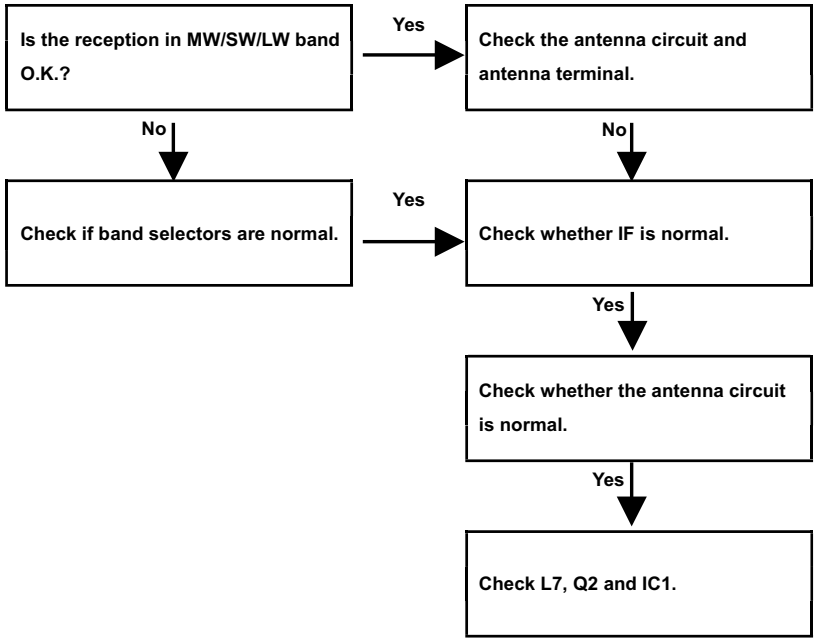

IC1 TA2111N
IC2 TDA2822
Q1 2SA1576A
Q2 2SK212D
Q3 2SA1576A
Q4 2SA1576A
Q5 2SC4081R
Q6 2SA1162GR
Q7 2SC4081R
Q8 2SC4081R
T1
2271
CF1
1664011
CF2
CDALA10M70A077-B0
CF3
1664120
CF4
1664120
BPF1
1664222
D1 1SS314
D2 1N4148
D3 1N5817
LED1
ANT1
ANT_ROD
L6
MW/LW ANT
ST
MONO
SW1_1
SW1_2
SW1_3
SW1_4
4 ohm
SP1
JK1
1647031
JK2
1640290
BATT1
3V

# TROUBLESHOOTING FLOW CHART

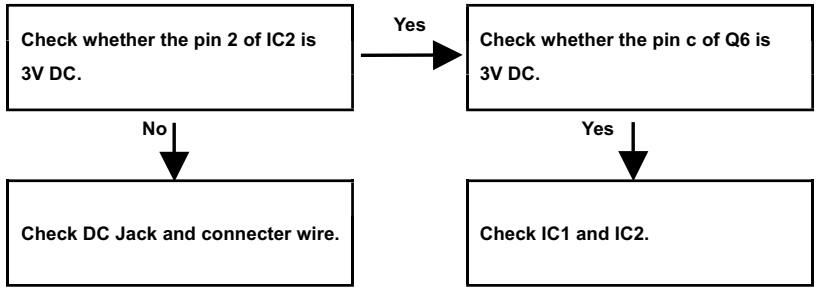
**( 1 ) Weak sensitivity on FM mode**


Check whether the sensitivity is recovered if antenna is directly connected to the point between C32 and C72.
Yes
Check the antenna terminal and antenna circuit.
No
Check IF waveform.
Yes
Check T1 and IC1.
No
Check C6 and L3.

**( 2 ) Weak sensitivity in AM band**

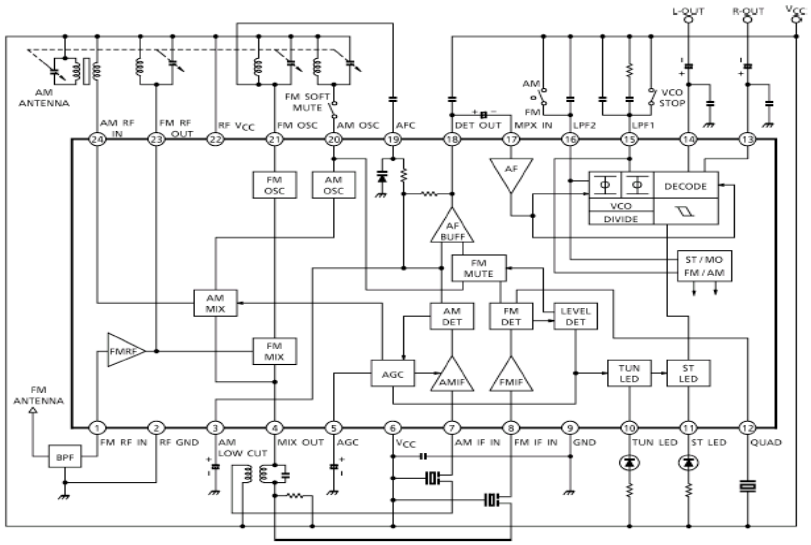



**( 3 ) Power can not be turned on**

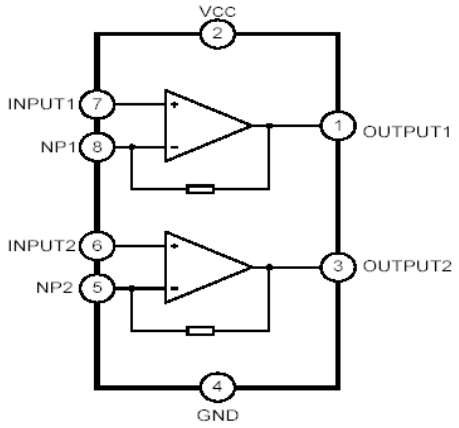

Check whether the pin 2 of IC2 is 3V DC.
Yes
Check whether the pin c of Q6 is 3V DC.
No
Yes
Check DC Jack and connecter wire.
Check IC1 and IC2.

# IC CIRCUIT BLOCK DIAGRAM

## 1. IC1-TA2111N




## 2. IC2-TDA2822




# IC AND TRANSISTOR VOLTAGE CHART

**IC1-TA2111N**

| PIN | FM | AM |
|---|---|---|
| 1 | 0.8 | 0 |
| 2 | 0 | 0 |
| 3 | 0.4 | 1 |
| 4 | 2.4 | 2.8 |
| 5 | 0 | 0 |
| 6 | 2.9 | 2.9 |
| 7 | 2.3 | 2.3 |
| 8 | 2.9 | 2.9 |
| 9 | 0 | 0 |
| 10 | 2.7 | 2.7 |
| 11 | 2.7 | 2.7 |
| 12 | 2.3 | 2.3 |
| 13 | 1.2 | 1.2 |
| 14 | 1.2 | 1.2 |
| 15 | 2.9 | 2.9 |
| 16 | 2.9 | 2.9 |
| 17 | 0.7 | 0.7 |
| 18 | 1.0 | 1.0 |
| 19 | 0.9 | 0.9 |
| 20 | 2.9 | 2.9 |
| 21 | 2.9 | 2.9 |
| 22 | 2.9 | 2.9 |
| 23 | 2.9 | 2.9 |
| 24 | 2.9 | 2.9 |

**IC2- TDA2822**

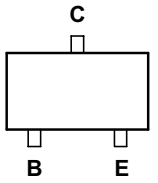
| PIN | FM | AM |
|---|---|---|
| 1 | 1.25 | 1.25 |
| 2 | 3 | 3 |
| 3 | 1.25 | 1.25 |
| 4 | 0 | 0 |
| 5 | 0.55 | 0.55 |
| 6 | 0 | 0 |
| 7 | 0 | 0 |
| 8 | 0.55 | 0.55 |

**Transistor**

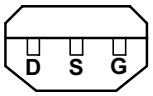
| | | FM | AM |
|---|---|---|---|
| Q1 | C | 2.1 | 2.9 |
| | B | 2.9 | 2.3 |
| | E | 2.9 | 2.9 |
| Q2 | G | 0 | 0 |
| | D | 1.6 | 1.6 |
| | S | 0 | 0 |
| Q3 | C | 1.5 | 1.5 |
| | B | 2.1 | 2.1 |
| | E | 2.7 | 2.7 |
| Q4 | C | 0 | 0 |
| | B | 2.9 | 2.9 |
| | E | 2.9 | 2.9 |

| | | FM | AM |
|---|---|---|---|
| Q5 | C | 2.7 | 2.7 |
| | B | 0 | 0 |
| | E | 0 | 0 |
| Q6 | C | 2.9 | 2.9 |
| | B | 2.2 | 2.2 |
| | E | 3 | 3 |
| Q7 | C | 0.6 | 0.6 |
| | B | 0.3 | 0.3 |
| | E | 0 | 0 |
| Q8 | C | 0.1 | 0.1 |
| | B | 0.6 | 0.6 |
| | E | 0 | 0 |

**Transistors**




**2SA1576A**
**2SC4081R**
**2SA1162GR**

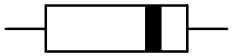



**2SK212D**

**(E:Emitter C:Collector B:Base S:Source G:Gate D:Drain)**

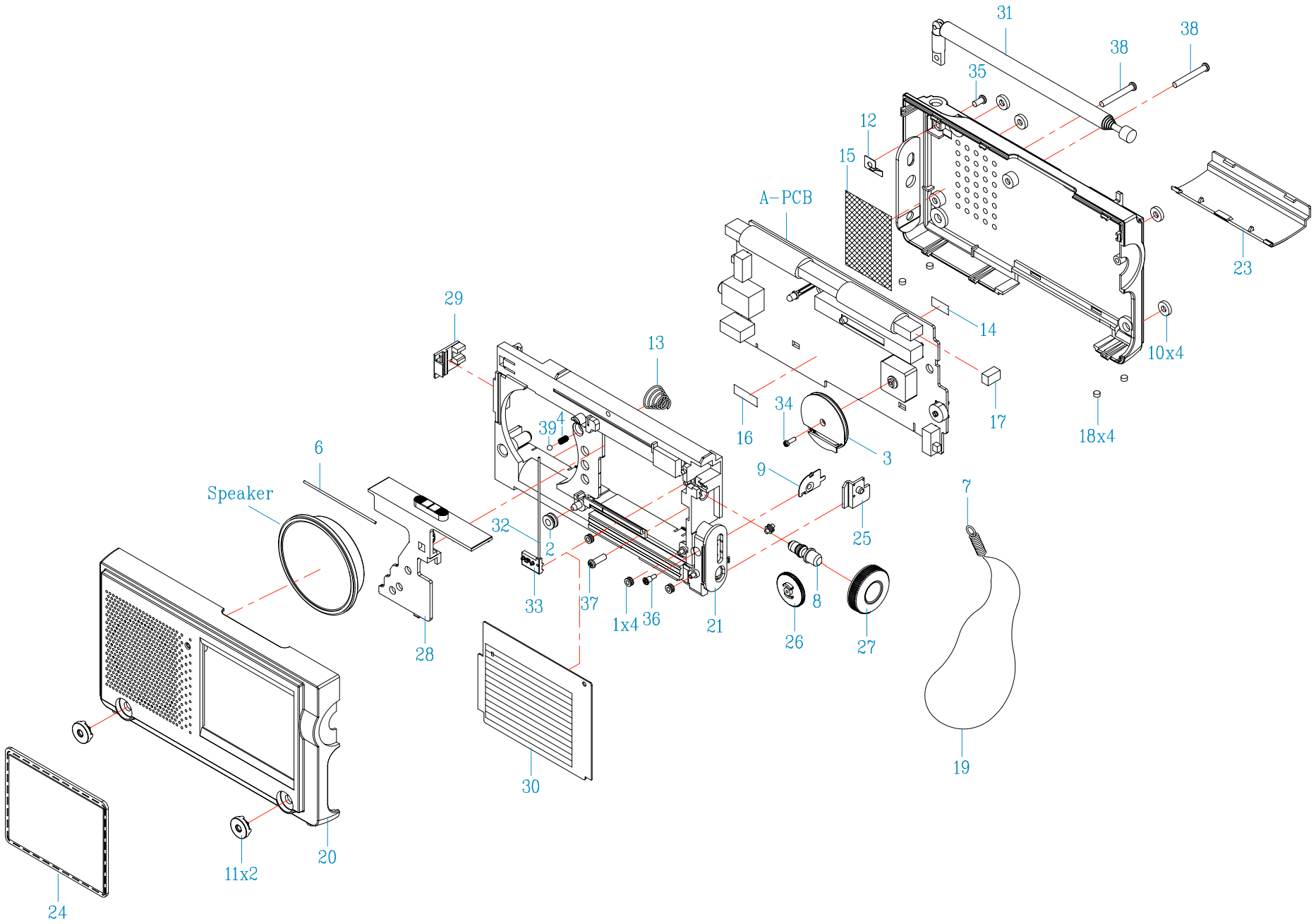
**Diodes**

**1N4148**



**1S5817**

**1SS314**


31
38
38
35
12
15
A-PCB
23
29
13
14
10x4
39
4
34
16
17
18x4
6
3
9
Speaker
32
2
25
7
33
37
1x4
36
21
8
26
27
28
30
19
20
11x2
24

GRUNDIG

Ersatzteilliste
Spare Parts List

AUDIO/HIFI

**11 / 2003**

# YACHT BOY 10 WR5401

MATERIAL-NR. / PART NO.: 755112205000
BESTELL-NR. / ORDER NO.: GRO0250 CHROM/CHROME

| POS. NR. ABB. POS. NO. FIG. | MATERIAL-NR. PART NUMBER | ANZ. QTY. | BEZEICHNUNG (D) | DESCRIPTION (GB) |
|---|---|---|---|---|
| | 755112205000 | | YACHT BOY 10 WR5401 CHROM **TAUSCHGERAET** | YACHT BOY 10 WR5401 CHROME **EXCHANGE SET** |
| | 759545015100 | | DECKEL BATTERIE | BATTERY COVER |
| | 720114035000 | | BEDIENUNGSANLEITUNG D/GB/F/I/P/E/NL/PL/DK/S/FIN | INSTRUCTION MANUAL D/GB/F/I/P/E/NL/PL/DK/S/FIN |

Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Mat.-Nummer 720108000001, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 720108000001, as well as the respective national deviations.

ÄNDERUNGEN VORBEHALTEN / SUBJECT TO ALTERATION